finitus
wir denken zu Ende...

poambo

High-End Stereo Amplifier

perfects SACD

SUPER AUDIO CD

User Manual

Version 1.4

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1. Safety Instructions

CAUTION!
Risk of electric shock. Do not open the enclosure.
There are no user serviceable parts inside the device. The device may only be serviced by qualified personnel.

The exclamation mark within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

WARNING!
TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE.

- Read these instructions.
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Do not use this apparatus near water.
- Clean only with dry cloth.
- Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- Only use attachments/accessories specified by the manufacturer.
- Only use the power cord delivered with the device.
- Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
- The device has no standby mode, if the power switch is in the off psition, the device consumes no power.

- **The heat sinks of the device may get hot after longer operation. There is the risk of burn when touching them!**

2. Overview

The poambo is a High-End power amplifier. Its convincing sound quality makes it a perfect partner in studio and HiFi environments, paying attention to audio reproduction without compromises. It perfectly fits to high resolution formats as the SACD, DVD-Audio and Vinyl as well as analog tapes.

3. Outline

The poambo features the ***finitus ALD*** technique („**a**ctive **l**oaded **d**ifferential amplifier“) which makes the poambo a low distortion and awesome musically sounding amp. Including modern digital communication and protection systems its amplifier section is totally analog, giving a maximum of performance. Including an ethernet connection, the poambo is ready for home server applications.
Enter a new listening dimension with the finitus poambo!

4. Content Of The Box

Unpack the poambo carefully and check for possible transport damage.

CAUTION!
Do not connect the device when you discover damages, loose parts or similar! Keep the carton and packing materials for future transportation.
The carton should contain the following items:

- amplifier „poambo“
- power cord
- user manual „poambo“ (this document)

5. The Back And The Front Panel Of The Device

5.1. The back panel of the poambo

Abbildung 5.1.1: back of poambo

The poambo has two RCA inputs on the rear panel. The amplified audio signal is available at two outputs (two terminals each) for connecting the speakers. On the back you find the mains socket including the power switch. Below the socket is a small drawer with two fuses. The inner one lies in the current path and the second, outer, serves as a replacement.

5.2. The front panel of the poambo

Abbildung 5.2.1: front of poambo

Two LEDs in the i-points of the finitus logo indicate the operating mode, both are illuminated red during normal operation. If they flash alternately, a special operating condition exists and is displayed on the LEDs. The special operating conditions are explained below.

5.2.1. Error display on the front panel

The LEDs on the front panel provide information about the current status of the poambo. If the two logo LEDs are flashing, one of the following conditions exist:

- **Soft Start**
  The device has been turned on and is just starting.
  After a few seconds the LED disappears, after another five seconds the speaker output is switched on and you can listen to music.

- **Clip**
  The maximum output level has been exceeded.
  In order to protect the speakers, the speaker outputs of the poambo are switched off after longer periods of clipping. Reduce the music level and the poambo will turn on the speaker outputs back on after a few seconds.

- **Over**
  The maximum output power has been exceeded.
  To protect your speakers and the output drivers, the speaker outputs of the poambo are switched off after longer periods of „over“. Reduce the music level. Check the minimum impedance of your speakers. If the error is corrected, the poambo will turn on the speaker outputs back on after a few seconds.

- **DC**
  The maximum DC voltage level has been exceeded.
  This error either indicates music material with extreme low end (<0.2Hz) or there is an internal error.In order to protect the speakers, the speaker outputs of the poambo are switched off. If this error occures frequently, contact finitus and talk to a specialist.

- **Temperature**
  The maximum permissible temperature has been exceeded.
  This can occur in hot environments or by longer very high load. The poambo switches off the speaker outputs and waits until the temperature is within the acceptable range again. Then the poambo will turn the speaker outputs back on.

- **Mute**
  One of the outputs is muted.
  If *one of the speaker outputs is switched off, it is indicated with the mute LED. The mute state can also be activated through network. In this case, no further error LED is lit.*

6. The Interior Of The poambo

Analog signal processing is very important inside the poambo. The entire path of the audio signal is pure analog and set up discretely. No operational amplifiers or audio chips are used. A functional separation of the analog protection circuits and a complete physical seperation of the digital circuitry from the rest of the amplifier keeps the audio signal extremely clean.

6.1. Protection and detection systems

- **SOA Protection**
  Limits the maximum power of the output transistors to the maximum allowable power preventing destruction of the output stages.

- **SOA Detection**
  The ***finitus NOD*** ("**n**on intrusive **o**pto coupled **d**etection") detects if the SOA protection is active and opens the output relays to protect the speakers and the output stage.

- **DC Detection**
  Opens the output relays to protect the speakers when a too high DC voltage is measured.

- **Clip Detection**
  With the ***finitus TDC*** ("**t**rue **d**ifference **c**lip detection") real clipping is detected and the output relays are opened to protect the speakers.

- **Mains fail detection**
  Detects a loss of the mains voltage and opens the output relays to protect the speakers.

- **Temperature measurement**
  The temperature of the output stages and the rectifiers is monitored constantly. If the maximum allowable temperature is exceeded, the amplifier is separated from the speakers by opening the output relays.

- **Soft start**
  Each time the poambo is switched on, the large toroidal transformer is started smoothly thus, inrush current is reduced.

6.2. Technical refinements

- **Passive cooling**
  Fan noise? No, the poambo uses purely passive cooling!

- **Quasi dc coupled system**
  The lower cutoff frequency is so low that the poambo behaves like a dc-coupled system. Nevertheless, it blocks dc voltages at the input, protecting the speakers.

- **Temperature compensated auto bias**
  The ***FTA*** ("**f**ast **t**emperature compensated **a**uto bias") of the poambo controls the bias voltage precisely and quickly. As a result, the poambo sounds extremely well even in a cold state after switch on.

- **Untouched subsonics**
  The poambo uses no dc servo, so even the lowest bass frequencies remain unchanged and are reproduced without coloration. Nevertheless, the dc offset of the poambo is below 1mV.

- **Two relays per channel**
  The two output relays per channel provide a very low contact resistance and high reliability. Each of them is full load capable.

- **Strong power supply**
  The power supply of the poambo is fed by an oversized toroidal transformer and has a squadron of low ESR buffer capacitors.

- **Digital DC logic**
  All signals that are in contact with the analog part are pure DC signals. No clocks, no buses, no fast switching, no interference. The temperature sensors are analog, too.

- **Ripple rejection**
  The extremely high level of immunity against uncleanliness of the supply voltage makes the poambo incredibly unaffected by the used power cables and fuses.

The layout is adapted to the signal flow and provides short distances and low impedances in the critical paths. All resistors are metal film with only 1% tolerance, thus circuit equality and very low noise is ensured.

The entire system has a linear phase, the signals thus have a constant group delay. This has a particularly positive impact on the hearing experience, since our ears and brain are very sensitive to deviations of this kind (in the time domain).

7. Operating The poambo

Make sure the poambo is turned off before you connect the speaker or signal cables.

7.1. Connection to the mains

Set up the poambo and connect it to an AC outlet. Be sure that your model fits your country voltage.
Do not turn on the poambo yet.

7.2. Cabling of the audio signals

Now connect the outputs of your feeding device (preamp) to the inputs of the poambo. Connect your speakers to the outputs of the poambo (speaker terminals).

Pay particular attention to the correct polarity, i.e. both speakers should be connected with their positive terminal to the positive terminal of the poambo, so that both speakers are working in phase.

7.3. Powering up the poambo

First make sure that the volume control of the preamplifier is set to minimum.

Now turn on the playback devices and your preamplifier and last the poambo.

7.4. Listening to music

Now its time to do what the poambo can do best...be musically!

Start playback on your playback device and turn the volume control of your preamplifier slowly until a comfortable listening level is reached.

Please note that high listening levels can do harm to your sense of hearing!

8. Cleaning The poambo

The poambo consists of brushed aluminum which easily shows fingerprints or dust.

The best way to clean the poambo is using ordinary degreasing kitchen cleaner.

Please do not use solvents as they can remove the print of the front and back plate!

The anodizing is very resistant to cleaning agents but one sees films remaining if applied incorrectly. Spray a rag or preferably a microfiber cloth with cleaning agent and distribute it in the brushing direction on the surfaces of the poambo. Rub evenly over the entire surface until the agent is dried up. This way you get the typical streak-free shine of the poambo.

Do not use oven cleaner or cleaning methods using abrasive particles! They will scratch the only a few micrometers thick anodizing!

Always make sure to unplug the poambo from the mains power before cleaning! Too much detergent dripping into the interior of the poambo may cause an electric shock!

9. The Controlling PC Software

You can check the status of the poambo using the control software „poambo control“. Therefore the poambo must be connected to a PC via ethernet.

For more details about the software its installation and use, see the user manual of "pomabo control" which can be downloaded on our website www.finitus.de.

10. finitus Technologies Explained

10.1. ALD „**a**ctive **l**oaded **d**ifferential amplifier“

The use of active loads in specific parts of the amplifier circuit has a similar effect as cascoding. The bandwidth is increased and the amplifier circuit is decoupled from disturbances in the supply voltage. In addition, the distortion is much lower than with resistive loads. This technique is used not only in the differential part of the poambo circuits.

10.2. ***NOD*** „**n**on intrusive **o**pto coupled **d**etection“

The goal of any detection should be not to affect the measurand (in our case, the audio signal). Using an optically coupled circuit is very close to this ideal. Neither there is a galvanic coupling nor can repercussions still occur.

10.3. ***TDC*** „**t**rue **d**ifference **c**lip detection“

Since the internal supply voltages change slightly with the load, in the poambo the real difference between the audio signal and the supply voltage is measured for the clip detection. This difference is captured and analyzed with a safety margin so that the speakers are optimally protected in any load condition against overload distortion.

10.4. ***FTA*** „**f**ast **t**emperature compensated **a**uto-bias“

The bias voltage of an amplifier has to be controlled very precisely and should comply with the optimum within a few thousandth of a volt. This optimum varies with the temperature of the amplifier stages, which in turn is dependent on the ambient temperature and the current load of the driver and output stages. All these parameters are covered by the ***FTA*** and it guarantees the observance of the optimum with the appropriate accuracy.

10.5. ***OIS*** “**o**utside **i**ndependent **s**ystem”

Like all other finitus products, the poambo is designed to be a system that is extremely independent of external components. Due to the circuits extremely high rejection ratio, components like fuses, power cords etc. have no measurable and audible effect on the output signals of the poambo.

11. Technical data of the poambo

All measurements were performed with an Audio Precision measurement system.

Gain	20.0 dBV, channel difference <0.1dBV
Frequency response	-0.1dB @10Hz / +0.8dB @200kHz (open)
Phase response	+5° @10Hz / -5° @200kHz (open, linear phase)
THD+N	0.0007% open, 1kHz (<10Hz-80kHz, unweighted) 0.0030 @1W, 8Ω, 1kHz (<10Hz-80kHz, unweighted) 0.0070% @10W, 8Ω, 1kHz (<10Hz-80kHz, unweighted) 0.0080% @50W, 8Ω, 1kHz (<10Hz-80kHz, unweighted) 0.0082% @100W, 8Ω, 1kHz (<10Hz-80kHz, unweighted)
S/N ratio	~120dB (<10Hz-80kHz, unweighted)
Crosstalk	< -80dB @1kHz (<10Hz-80kHz, unweighted)
Input impedance	~4.7kΩ
Damping factor	~400 @50W, 8Ω, 1kHz
Output power (burst continuous) **Output power** (RMS continuous)	2x 135W @8Ω (1kHz Sinus, burst, 1:9) 2x 213W @4Ω (1kHz Sinus, burst, 1:9) 2x 105W @8Ω (RMS, Sine) 2x 180W @4Ω (RMS, Sine)
Input-sensitivity	3.5Vrms
Audio Inputs **Audio Outputs**	Neuktrik RCA connectors speaker connections for cables up to 28mm²(Ø6mm) banana connections possible
Network connector	Neutrik Ethercon
Depth **Max. depth**	410 mm 430 mm (incl. connectors)
Width	390 mm
Height **Max. height**	120 mm (from ground) 136 mm (front-plate)
Weight	17.5kg

12. Contact

If you have any questions, suggestions or requests, please do not hesitate to contact us.

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